

PATENT SPECIFICATION

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NO DRAWINGS



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(54) PREPARATION OF VEGETABLES AND FRUIT

(71) I, RASHDEN GREGORY RUSHDEN of 64a Fieldside, Ely, Cambridgeshire, a British subject, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to the preparation of potatoes and other vegetables in a state ready for cooking.

Various methods for the preparation of potatoes and other vegetables are known and have been in use for some time. The simplest way of preparing potatoes, for instance, consists of peeling them, sulphiting them in order to delay discolouration and pre-packing them in plastic bags. The keeping quality of prepared potatoes in this manner is, however, rather poor and they usually deteriorate within 40 hours at ambient temperature and within 5—7 days if stored at 35—40°F. Another method of preparing potatoes, especially chipped potatoes, is to blanch them at high temperature in oil. The shelf life of these partially cooked chips is even shorter than raw chips at ambient temperature; they are usually frozen and stored at temperatures below freezing point at which temperature they will keep quite a long time. Finally, there is the well known method of preserving potatoes and other vegetables by canning in which the vegetables are cooked at high temperature under superatmospheric pressure. This method of cooking and preserving potatoes is quite satisfactory, especially when new potatoes are used. However, difficulties may be encountered during the canning of old potatoes in as much as almost all varieties of potatoes are inclined to lose their firm texture and usually disintegrate.

The tendency to lose the firmness when exposed to high temperatures is a characteristic of and common to most vegetables and fruit. It has now been found that this can be prevented and in certain cases the firmness can even be enhanced if the produce, in accordance with the invention, is blanched and sterilized at temperatures above 150°F. but not exceeding 190°F., quickly cooled to

below 40°F. and stored at a temperature between 33° and 40°F.

The aim of the heat treatment within the above specified temperature range, which is suitably carried out for a period of up to 30 minutes and preferably for a period of from 5 to 30 minutes, is threefold. Firstly, to inactivate the enzymes present in the produce; secondly, to gelatinize starch and other gelatinizable compounds present without disrupting the tissue structure, for instance, by rupturing the starch cells, and thirdly, to substantially reduce the number of micro-organisms which otherwise would cause spoilage of the product during storage. The heat treatment itself is preferably carried out, according to the present invention, in saline and/or acidified water in order to destroy as many as possible of the micro-organisms present which may cause decay. It will, of course, be understood that the acidified water, which suitably contains up to 3% by weight of acid, should be acidified with a non-toxic acid and organic acids such as citric acid are preferred. The saline water preferably contains from 1 to 5% by weight of salt.

After the heat treatment the liquid is drained off and the produce, prepacked in suitable containers, e.g. plastic bags, glass containers or cans and hermetically sealed, is chilled to 35—40°F. After the above described treatment the product itself is wholesome, solid and firm in texture, of unimpaired flavour and will keep without any deterioration for at least 2—3 months when stored at 35—40°F.

In order that the invention may be well understood the following Examples are given by way of illustration only.

EXAMPLE 1

Prepared Potatoes

Potatoes are peeled, packed in suitable plastic bags and covered with hot (160 to 180°F.) water containing 2 to 3% by weight of salt (sodium chloride). The temperature of the water is then raised to 175—180°F. and kept at this temperature for a period of

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15 to 25 minutes depending on the size of potatoes. The liquid is then drained off, and the bags sealed, quickly cooled to 35—40°F., and stored at 35—40°F.

5 EXAMPLE 2

Prepared Carrots

10 Peeled carrots, whole or sliced, are placed into suitable plastic bags or glass jars, covered with warm solution containing 1.5% by weight of salt and 0.01% by weight of citric acid and treated in the same way as described in Example 1.

EXAMPLE 3

Prepared Apples

15 Peeled, cored and quartered apples are placed into suitable plastic bags, covered with a hot (150—165°F.) solution containing 1 to 2% by weight of citric acid and some sugar if desired. The temperature is then raised to 150—165°F. and kept at this temperature for 12 to 15 minutes according to the size of apples, after which the liquid is drained off, and the bags sealed, quickly cooled to 35—40°F. and stored at 35—40°F.

25 WHAT I CLAIM IS:—

1. A method of preserving fruit and vegetables which comprises blanching and sterilizing the prepared fruit or vegetables with water at a temperature of from 150° to 30 190°F. quickly cooling the fruit or vegetables to a temperature below 40°F. and storing the cooled fruit or vegetable at a temperature of from 33 to 40°F.

2. A method as claimed in claim 1 in 35 which the fruit or vegetables are cooled to a temperature of from 35° to 40°F.

3. A method as claimed in claim 1 or

claim 2 in which the water contains salt and/or an acid.

4. A method as claimed in claim 3 in 40 which the water contains from 1 to 5% by weight of salt.

5. A method as claimed in claim 3 or claim 4 in which the water contains up to 45 3% by weight of acid.

6. A method as claimed in any one of claims 3—5 in which the acid is citric acid.

7. A method as claimed in any one of the preceding claims in which after blanching the fruit or vegetables are hermetically sealed in suitable containers and then chilled. 50

8. A method as claimed in any one of the preceding claims in which the fruit or vegetables are blanched for a period of up to 30 minutes. 55

9. A method as claimed in claim 8 in which the fruit or vegetables are blanched for a period of from 5 to 30 minutes.

10. A method as claimed in claim 9 in 60 which the vegetables are potatoes or carrots and are blanched for a period of from 15 to 25 minutes.

11. A method as claimed in claim 9 in which the fruit are apples and are blanched for a period of from 12 to 15 minutes. 65

12. A method as claimed in any one of the preceding claims substantially as hereinbefore described with reference to any of the Examples. 70

13. Fruit or vegetables when stored by a method as claimed in any one of the preceding claims.

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